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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/574,541

04/26/2006

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EXAMINER

PATEL, DEVANG R

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

07/21/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,541	Applicant(s) STROH ET AL.	
	Examiner DEVANG PATEL	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The rejection under 112, 2nd paragraph in prior office action is withdrawn in light of new claims 14-26.

Claim Rejections - 35 USC § 102

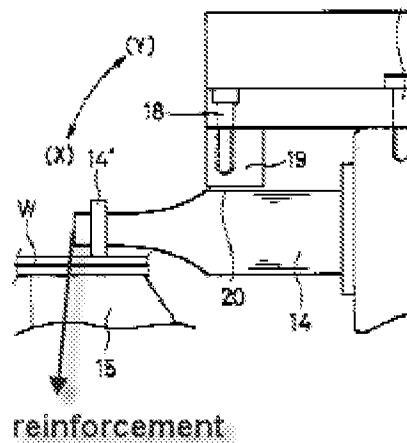
1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 14-15 and 18-22** stand rejected under 35 U.S.C. 102(b) as being anticipated by Tamamoto (JP 10202752 A, of record).

a. **Regarding claim 14**, Tamamoto discloses an ultrasonic welding device in the form of a horn 14 (i.e. sonotrode) in Fig. 4. Feature 14' represents the working surface, which is perpendicular to the horn's longitudinal axis and a reinforcement element is shown on the front surface of 14'. The front surface runs perpendicular to the working surface and includes reinforcement. The design of the device protects the horn from being deflected (English abstract). Therefore, it is the Examiner's position that the reinforcement is capable of reducing deflection of the at least one working surface. However, while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function (i.e. for reducing deflection).



- b. **As to claim 15**, the term “rib” is defined to be “an elongated ridge” (Merriam-Webster dictionary) and accordingly, the reinforcement of Tamamoto is a rib.
- c. **As to claim 18**, the reinforcement of Tamamoto runs perpendicular to the working surface.
- d. **As to claims 19-22**, Tamamoto's reinforcement is shaped as a beam in a linear manner, symmetrically with respect to the horn's longitudinal axis, and projects from substantially entire front surface.
3. **Claims 23-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamamoto as applied to claim 14 above, and in view of Ehlert et al. (US 2003/0111513 A1).
- e. **As to claims 23-26**, Tamamoto does not disclose the deflection ratio of the horn or the reinforcement thickness over the front surface. Ehlert et al. (drawn to rotary ultrasonic horn) discloses an ultrasonic horn member 28 and an isolation member 42 that is similar to reinforcement. The rotatable horn member exhibits a very low static deflection of 0.025 mm or less when subjected to a

static force of 445 N (para. 67). Ehlert further discloses that the length, thickness, elastic modulus and other parameters can be selected and configured to provide the operative bending and fatigue resistance of the axial isolation component (para. 53). It would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges of $3 < a_z/a_y < 20$ and reinforcement extension of 3-25 mm through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See In re Boesch, 205 USPQ 215 (CCPA 1980).

4. **Claims 14-26** rejected under 35 U.S.C. 102(b) as being anticipated by Neuwirth et al. (US 5096532).

f. **Regarding claim 14, Neuwirth et al. (“Neuwirth”)** discloses a sonotrode for an ultrasonic welding device having a longitudinal axis, said sonotrode having a head portion comprising at least one working surface which is substantially parallel to the longitudinal axis, a front surface which is substantially perpendicular to the at least one working surface, and a back surface [**fig. 17**],

i. the sonotrode transferring ultrasonic vibrations in the direction of the longitudinal axis [col. 5, lines 19-65],

ii. wherein at least one of the front surface and the back surface comprises at least one reinforcement, capable of reducing deflection of the at least one working surface [figs. 17-22]. While features of an apparatus may be recited either structurally or functionally, claims directed

to an apparatus must be distinguished from the prior art in terms of structure rather than function (i.e. for reducing deflection).

- g. **As to claim 15**, the reinforcement of Neuwirth is a rib [fig. 30].
- h. **As to claim 16**, the reinforcement of Neuwirth exhibits triangular geometry in a section of the longitudinal axis [fig. 30].
- i. **As to claim 17**, the reinforcement of Neuwirth increases in height over the front surface from a peripheral edge of the front surface at the at least one working surface, in the direction of the longitudinal axis.
- j. **As to claim 18**, the reinforcement of Neuwirth runs perpendicular to the at least one working surface.
- k. **As to claims 19-22**, the reinforcement of Neuwirth is shaped as a beam in a linear manner. The reinforcement projects from the entire front surface and is shaped symmetrically to a symmetry plane of the longitudinal axis.
- l. **As to claim 23**, Neuwirth discloses the deflection ratio (ratio of radial to longitudinal amplitude) being 2.5 [table 9], which meets the limitation of $a_z/a_y = 3$. Moreover, with ultrasonic excitation, the horn of Neuwirth is capable of acting with a deflection ratio in the claimed range.
- m. **As to claims 24-26**, Neuwirth discloses the reinforcement extension over the front surface (dimension 327/347/357) of 5 mm [table 11; figs. 32-35].

Response to Arguments

Applicant's arguments have been considered but are moot in view of new claims and new grounds of rejection.

Applicant argues that the tip 14' of the JP '752 reference is a separate component and not the front surface. Accordingly, the sonotrode is not reinforced. It appears Applicant believes the claims are limited to the front surface and reinforcement being one and the same and being a terminal end of the sonotrode. However, the claims are not limited to this narrow interpretation. Therefore, the front surface of JP '752 comprises the tip 14' and reinforcement. Stated differently, tip 14' is the front surface of the sonotrode head and it comprises the reinforcement which protrudes therefrom. In the alternate rejection, Neuwirth discloses a reinforced sonotrode head [figs. 17-22].

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Claims 14-26 are rejected.

The rejections above rely on the references for all the teachings expressed in the text of the references and/or one of ordinary skill in the art would have reasonably understood from the texts. Only specific portions of the texts have been pointed out to emphasize certain aspects of the prior art, however, each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combinations of the cited references may be relied on in future rejections in view of amendments.

Applicant is reminded to specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. 1.121; 37 C.F.R. Part 41.37; and MPEP 714.02.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVANG PATEL whose telephone number is (571)270-3636. The examiner can normally be reached on Monday thru Thursday, 8:00 am to 5:30 pm, EST..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. P./

Examiner, Art Unit 1793

/Jessica L. Ward/

Supervisory Patent Examiner, Art Unit 1793